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(54) HEATED SEAT BELT

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(52) **U.S. Cl.**

(58) Field of Classification Search

USPC 219/202, 494, 528, 539, 541, 545 See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

3,306,662 A *	2/1967	Finnigan B60R 22/00
4,565,991 A *	1/1986	297/482 Lupoli B60R 16/0232 340/384.7

5,653,741 A	8/1997	Grant
5,727,814 A	3/1998	White
5,730,121 A	3/1998	Hawkins, Jr. et al.
6,630,414 B1	10/2003	Matsumoto
6,737,610 B1	5/2004	Horn et al.
7,788,952 B2	9/2010	Morrison
7,977,608 B2*	7/2011	Diemer B60N 2/002
		219/217
8,269,512 B2*	9/2012	Ootaka B60R 21/01532
, ,		297/217.3

(Continued)

FOREIGN PATENT DOCUMENTS

AΤ	300591			7/1972	
DE	102008034633	A1		1/2010	
FR	2765834		×	1/1999	H05B 3/34
JP	2013226882	Α	*	2/2013	H05B 3/347
JP	2015039901		×	3/2015	Н05В 3/347

OTHER PUBLICATIONS

U.S. Appl. No. 15/834,170, filed Dec. 7, 2017, entitled "Vehicle Seat Belt System Having Electrical Connector," (21 pages of specification and 22 pages of drawings) and filing receipt.

(Continued)

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(57) ABSTRACT

A vehicle seat belt system is provided. The vehicle seat belt system includes a seat belt comprising a webbing, an electric powered device such as a heater coupled to the webbing, electrical circuitry connected to the heater and extending through a seat belt buckle and connector tongue, and an electric power source for providing electric power to the electric heater via the electrical circuitry. The electrical circuitry supplies power through the connector tongue and seat belt buckle.

20 Claims, 22 Drawing Sheets

